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CURRICULUM INTEGRATION CONNECTING ACADEMIC
AND CAREER AND TECHNICAL EDUCATION

A Project
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in
Education:
Career and Technical Education

by
Crystal Yvette Clark
June 2005

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Approved by:



Joseph A. Scarcella, Ph.D., First Reader

5/27/05

Date



Ronald K. Pendleton, Ph.D., Second Reader

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ABSTRACT

In 1990, the federal government mandated the "integration" of Academic and Career and Technical Education through amendments to the Carl D. Perkins Vocation Education Act of 1984. Changes in the "Carl D. Perkins" act have necessitated a need for curricular integration in secondary schools nationwide. Historically, teachers have focused their curriculum on the development of technical knowledge and skills and leaving the core academics to the teachers of others academic disciplines.

Considering this, this study attempted to establish a positive connection between Academic and Career Technical Education disciplines, and to develop a curriculum to help teachers and students realize the significant amount of academic knowledge that is embedded in their technical content.

Curricular integration when it is applied in conjunction with career and technical courses could help remove the isolation that can occur in schools. It also can help prevent fragmentation of the curriculum as students start to see how the different subjects relate to one another, making learning more relevant and applicable from school to work.

ACKNOWLEDGMENTS

Thanks to my professors Drs. Ronald K. Pendleton and Joseph A. Scarcella for being the greatest instructors of all time - To my husband, mother, children, grandchildren sisters, and brothers that I cherish more than they will ever know. Thanks to my very close circle of friends.

DEDICATION

This project is dedicated to my family, whom I adore for supporting me throughout my educational endeavors; they have encouraged me never to give up on my dreams. I have appreciated your support and love. Even more, to my husband, Gary L. Clark, who has stayed by my side and has given me the assurance needed to complete my educational journey. I am very grateful to you Gary. I could not have accomplished my goal without your support and love.

To my mother, Eunice Hill and to my sister, Velma Hill, thank you for encouraging me to follow my dreams, for continually believing in me, and encouraging me to believe in myself. Both of you are an inspiration in my life; most of all, you are the wings beneath my dreams. I could not have done this without your support.

Thanks to my friends who have contributed in my accomplishments. I could not have made it this far without your support, understanding, and patience. I will always be grateful to all of you.

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CHAPTER ONE

BACKGROUND

Introduction

The content of Chapter One presents an overview of the project. The contexts of the problem are discussed followed by the purpose, significance of the project, and assumptions. Next, essential concepts, learning styles, and strategies are the purpose and significance of the project; the limitations and delimitations that apply to the project are reviewed. Finally, definitions of terms are presented.

Purpose of the Project

The purpose of the project was to develop a curriculum that will help integrate Academic, Career, and Technical Education. The basic purpose of curriculum integration is to help students make connections between academic and technical information, to help them discover the answer to "Why do I have to learn this? In addition, it will provide teachers with real-life, problem-based activities, and instructions to help students ascertain the relevance of school-to-work. These strategies are not discovered in traditional education processes but through schools attempting to implement pedagogical reforms that

moved teachers away from didactic techniques (lecturing and toward more facilitate technique, coaching, modeling, and project-based learning) (Rand, 1994).

Context of the Problem

The context of the problem was to address Curriculum Integration in pre/post-secondary schools. Academic and Career and Technical Education programs in America's high schools have grown increasingly separate. In recent years, this separation has come under criticism because the growing recognition that the workplace of the future will require new and different skills of all workers.

New designs for the comprehensive high school identified three problems, which, concerns the majority of United States pre/post secondary schools.

- 1) Most students today attend high schools that show little connection to what is happening in the workplace.
- 2) Schools are presorting student into "tracks" of learners, which foster inequity in schools.
- 3) High Schools lacked a common vision for and solid commitment to clear educational goals for our students (National Center for Research in Vocational Education NCRVE).

Teachers that enter the educational field experience various certification processes prior to entering the classroom. Students are faced with one strand of education such as academics, English, mathematics, science, etc, do not mix with students in the other phases of educational courses in Career and Technical Education (Rand, 1994).

Curricular Integration, in its broadest sense, carries with it elements of reforms that addresses many of the problems facing traditional high schools. Among these areas of reforms are the lack of meaning and coherence in the curriculum, teacher ineffectiveness, and student passivity bred by the traditional high school programs.

These challenges American students' face in the global economy in preparation for further education is one of great struggle.

Many community leaders and national policy makers have criticized public education for its inadequate preparation of American students for the global economy (Kirst, 1991; Lynch, 1996).

Educational leaders and teachers view the integration of Academic, Career, and Technical Education as a potential cure to the common deficiencies in public education (Stasz, Kaganoff, & Eden, 1994).

Integration is viewed in many American public high schools as a way to solve the problems of preparing students for the global workplace and further education.

Advocates for curricular integration hope to address these concerns through this reform, taking the position that curriculum and pedagogy are central to schools and therefore constitute the necessary basis for widespread change (Rand, 1994).

As a result, states and localities throughout the nation are undertaking efforts to integrate the various disciplines (Rand, 1994).

Significance of the Project

The significance of the project was to design an integrated curriculum that encompasses job skills for pre/post-secondary students. The curriculum will incorporate a reform of pedagogical learning; develop critical thinking in addition to collaboration skills.

A good number of students following their first year after graduation from school experience a failure in the work environment. NCRVE (1997) confirmed that 55% of these students had more than nine months work experience; yet, the remaining 45% had less work experience. Even though the Perkins Act attempted to move both worlds of education

together, Academics, and Career and Technical Education through the integration of curriculums, the primary focus remained largely on special targeted populations.

Traditionally, Career and Technical Education had been considered for under/skilled and underserved minorities, women, handicaps and those with limited English proficiency. Today Academic, and Career and Technical Education remains seen as separate entities in pre/post-secondary schools.

Separation in core Academics and Career and Technical Education exists in teachers' credentialing preparation programs as well as the certification requirements. Often students in these two program courses do not associate with one another (Heaviside, Carey, & Farris, 1994). The separation of Career and Technical Education, and core academics is currently under study in order to determine a more unified approach to schooling (Stasz, & Eden, 1992).

Assumptions

The following assumptions were made regarding the project:

1. That an integrated Academic and Career and Technical curriculum guideline is needed.

2. Once the guidelines are established it will be utilized throughout the Unified School Districts within the state of California.
3. Curriculum Integration is desired by schools and is therefore worthy of investigation.
4. Teachers and principals are familiar with the term Curriculum Integration, and merging Academics with Career and Technical Education.

Limitations and Delimitations

During the development of the project, a number of limitations and delimitations were noted. These limitations and delimitations are presented in the next section.

Limitations

The following limitations apply to the project:

1. The target audience was pre/post-secondary students.
2. The constraints of the author's experience and exposure to the subject matter.

Delimitations

The following delimitations apply to the project:

1. This project can be adapted to fit the needs of most schools' curriculum.
2. The project design was useful to any instructor, students or individual requiring knowledge about learning styles and strategies.

Definition of Terms

The following terms are defined as they apply to the project.

Academic Subjects - Are high school curriculum that

includes four core subjects: mathematics, science, English, and social studies (Lankard, 1992)

Carl D. Perkins Act Amendments of 1990 - The purpose of

Perkins is to provide individuals with the academic and technical skills needed to succeed in a knowledge - and skills-based economy. (US Department of Education, 2003)

Comprehensive high school - A school that offers academic

and Career and Technical Education courses to pre/post- secondary students to prepare them for the transition of school-to-work; even more, focusing on

higher education (Bodilly, Ramsey, Stasz, & Eden, 1992).

Curriculum Integration - The combination of academic and Career and Technical Education philosophies, curriculum, and instructional strategies to form a single learning experience (Blank, Holmes, & Scaglione, 1992).

Curriculum - The entirety of the learning activities, and experiences that a student has under the auspices or direction of the school (Finch, & Crunkilton, 1979).

Dualism - Is the condition of being double. State of being dual a twofold division; and system, which is founded on a double principle or a twofold distinction (WorldNet Dictionary, 2002)

Integration - Revising processes of teaching instructions so to display bountiful applications of theory while at the same time the vocational programs incorporate theory that supports the practical skills that are being taught (Rand, 1994).

Career and Technical Education - Level or sub-set of vocational or occupational education that involves the preparation for or upgrading within occupations that lay between the skilled craftsman and professional. Technical occupations tend to involve a

heavier reliance upon understanding and competence in mathematics and science than might be found in most occupations that require less baccalaureate level preparation (US Department of Education, 2004).

Whole School Reform - a process designed to bring about change throughout the educational system (Fordham, 2002).

Career and Technical Education - courses are not considered general education course. Nevertheless, a good vocational program provides for a continuation of general education experiences (Scarcella, 2004).

School-to-Work - Transition involves service high school to employment, a comprehensive approach to educational program development, and an alignment of students work services (Warger & Burnette, 2000).

Organization of the Thesis

Chapter One provides an introduction to the context of the problem, purpose of the project, significance of the project, limitations and delimitations and definitions of terms. Chapter Two consists of a review of relevant literature. Chapter Three documents the steps used in developing the project. Chapter Four presents conclusions and recommendations drawn from the development of the

project. The Appendices for the project consists of:
Appendix A existing curriculum; Appendix B curriculum
integration; Appendix C Lesson Plans; finally, the project
references.

CHAPTER TWO

REVIEW OF THE LITERATURE

Introduction

Chapter Two consists of a discussion of the relevant literature. Specifically, unemployment and instability in the labor market for individuals 16 years and above. Next, was the evidence of support for school Curriculum Integration, characteristics and development of Curriculum Integration, career exploration, and integrating Academic and Career and Technical Education curriculum in pre/post-secondary schools were covered. Assessment and feedback are in the last part of Chapter Two, followed by the summary. Information was referenced through such sources as journals, books, and several Internet web pages.

Curriculum Integration

Bodilly, Ramsey, Stasz, and Eden (1992) stated the process of Curriculum Integration includes the combining of curriculum and pedagogical practices of Academic and Career and Technical Education into a single learning process. Schmidt, Finch, and Faulkner (1992) discussed in a study that Curriculum Integration involves making Career and Technical Educational course stronger academically and

making academic courses more applied and relevant (Schmidt Finch & Faulkner, 1992).

Curriculum Integration instruction permits the contextualization of academic skills, as found in classroom settings of literacy in pre/post-secondary education, and the workplace. Academic and Career and Technical Education integration is the fusion of reading, writing, English language, math and critical thinking skills with career-related instruction.

In some instances, academic discipline areas such as biology, philosophy, and social science have curriculums that are integrated with occupational content. Integrated instruction is typically accomplished either by aligning two or more courses, or by combining academic and occupational instruction in single courses (Perin, 2001).

There is increasing evidence that many students are able to master much higher levels of knowledge and skills when educators pay more careful attention to the wide range of student learning styles and modify instruction to accommodate them (Gardner, 1993). Therefore, in addition to standards, new instructional strategies must also be developed.

A History

Industrialization played a significant role in the historical dimensions of Career and Technical Education. Kincheloe (1999) indicated that workers were degraded; women were not allowed to work in the mills nor other places of employment. There was separation of social classes. Even more, the ethnic make-up of the industry workers was primarily immigrants and minorities.

Industries supported schools for the reason that it gave them control, control of the types of workers that would come into their industrial organizations. Prosser and Snedden (Kincheloe, 1999) stated the restructuring of American education was to meet the needs of industry. In addition, Prosser and Snedden (Kincheloe, 1999) believed in the separation of Academic Education from Career and Technical Education.

John Dewey, a Democratic Progressive, maintained opposing view to Prosser and Snedden regarding educational separation in order to benefit industry organizations. Dewey argued that educational setting would benefit from the integration of Academics and Career and Technical Education (Gubbs, Davis, Lum, Plihal, and Morgaine, 1991). He argued that a Career and Technical Education would

recognize and teach the full intellectual and social meaning of a vocation (Kincheloe, 1999)

Smith-Hughes Act 1917

Following the passage of the Smith-Hughes Act 1917, which contributed to the isolation of Career and Technical Education from other segments of the comprehensive high school curriculum, established a division between practical and theoretical instruction in United States public school systems, and has maintained a specific focus, distinct from mainstream academic education (Hayward, & Benson, 1993).

Smith-Hughes Act 1917, also established federal support for Career and Technical Education, and introduced a narrow conception of Career and Technical Education. One that tended to further the idea that instruction, to be effective, must be very specific and narrowly related to the occupational skills it seeks to develop, which discouraged experimentation with a broader concept of Career and Technical Education. However, its implementation required no review or adaptation of the pedagogy of secondary school leaders (teachers, principals, superintendents, educators, etc.).

The Smith-Hughes Act 1917 defined educational dualism as experienced throughout the public school system nationwide as the separation of classes within a single student body of general education. College preparatory courses for the socio-economic elite, and Career and Technical Education for those viewed as non-college bound students. Over a period of time, three pathways evolved:

- College preparatory (often called the academics)
- Career and Technical Education
- General curriculum - the unfocused playground of the neglected majority (Lankard, 1994).

Lankard (1994) stated one could only theorize that early public school leaders observed Career and Technical Education as a quick solution to the problem for students considered not college bound. Thus, the separation of Career and Technical Education and college preparatory education in America's public schools was set in stone

Nonetheless, the past 30 years have witnessed several efforts to address the division between Academics, and Career and Technical Education in public schools. Schools that implement career academics, career development, student projects, as well as innovative curriculum have made Curriculum Integration a strategy for improving

teaching techniques and the learning process (Stasz, Kaganoff, & Eden, 1995).

Unemployment and Instability

The data for analyzing unemployment and instability in the youth labor market was gathered from the National Longitudinal Survey of Youth (NLSY). Researchers, Veum and Weiss (1993) began their study in 1979 with a group of almost 13,000 respondents for the NLSY, the study revealed that students between 18 and 27 years of age and a high school graduate are not continuing on to higher levels of education.

Unfortunately, these individuals held more than six different jobs, and experienced more than four times unemployment spells than those with higher education levels and Career and Technical Education. Their analysis showed that young people with more schooling and career and technical education experience more stable employment after they leave school (Klerman, & Karoly, 1995).

In addition, high school graduates that are out of work involuntarily are not accumulating the knowledge and skills that are acquired through work experience. When jobs end, young people are at risk of finding themselves unemployed or out of the labor market. Apart from the

benefit of increased leisure time, such non-employment is evidently unproductive (Parsons, 1991).

Evidence of Support

Evidence support a study by Kaufman (2000) that revealed gains in the math and reading skills of students in 424 high schools nationwide between 1996 and 1998. This increase was due to Academic and Career and Technical Education teachers working together to improve both math and reading achievement of their students. This broad Integrated Curriculum moves away from memorization and rote exercises to the connection of concepts and patterns across curriculum areas. (Kaufman, Bradby, & Teitelbaum, 2000).

Countless strategies and procedures identified in the literature provided support for this project. Additional studies showed that the implementation of Curriculum Integration as a process for learning might be different, depending on school characteristics.

However, the National Center for Education Statistics, found that Career and Technical Education teachers are more likely to coordinate Curriculum Integration to coordinate efforts with English, math,

science, and history teachers (Heaviside, Carey, & Farris, 1994).

Levesque, Fauen, Teitelbaum, and Librera, (2000) with the US Department of Education conducted a random study that resulted in half of the schools surveyed reporting Academic Integration, and Career and Technical Education, and 90% of the teachers at the schools reported attending conferences on Curriculum Integration.

Brewer (1996) stated there is an increase in the morale and communication between both Academic and Career and Technical Education, also an increase in students' achievement as well as improved pedagogy as teachers integrate Academic and Career and Technical Education.

Comparable conclusions similar to those of Brewer (1996) were reached during the Tennessee Study conducted by Petty (1989). Petty's study resulted in data findings of employer rating Career and Technical Education graduate's effectiveness showed in their businesses, and industries. This validated local communities as being supportive of Career and Technical Education.

Employers surveyed for the study indicated that recent secondary Career and Technical graduates had better entry-level work skills than recent graduate without Career and Technical Education (Lankard, 1999).

Characteristics of Curriculum Integration

Walking into a school that has adopted an integrated approach to Academic and Career Technical Education curriculum, an observer might notice several aspects. First rather than a teacher in isolation, teachers would be working in teams, developing cross-curricular objectives, activities and assessments.

There would be flexibility in scheduling, and the length of class periods might be variable, rather than cast in 45-minutes blocks. Teachers will be given time to plan together (an essential part of curricular integration). In addition, there would be more focus on core skills development (academic, math, science), which is needed by all pre/post-secondary educational levels.

There would be more school and community support for the Integrated Curriculum approach. It would not be seen as a "passing fad," but a curricular approach that is embraced. These characteristics can be found within the career academy models that many large high schools have adopted. They can also be found in many areas of career centers that have a full complement of academic teachers on staff along with career and technical education instructors, and the students attend the career center for a full day (Zirkle, 2004).

Summary

The literature important to the project was presented in Chapter Two. The steps used to develop this project were outlined. The target populations for this course are secondary and post secondary schools. The curriculum development process including curriculum integration, the history, unemployment and instability in youth labor market, evidence of support for school integration, characteristics of integration, and integrating career and technical in curriculum was presented.

CHAPTER THREE

METHODOLOGY

Introduction

Chapter Three documents the steps used in developing the project. Specifically, the population served was discussed. Next, the developing of the project curriculum, development process including curriculum structure and content validation was presented. The chapter concludes with a summary.

Population Served

The populations served are student's age 16 years and above that are interested in preparing for Career and Technical Education and upgrading their current job skill levels. Many of our courses are offered in the San Bernardino County Career and Technical Education Centers and programs.

Career and Technical Education is an integral part of California's career preparation and workforce development efforts, and a major resource necessary to address the needs for a highly skilled, diverse workforce in the secondary educational system.

Career and Technical Education serves the needs of local communities and the state. Through industry and

education partnerships, these programs provide students with current relevant instruction meeting Career and Technical Education employment needs of the communities.

It provides qualified students with the opportunity to attend a Career and Technical Educational training program regardless of the geographical location of their residence. It was developed in accordance with the guidelines set forth by the Board of Director and County Board of Education. The core curriculum is appropriate for use in any secondary schools

Curriculum Development Project

The purpose of this project was to provide information on Career and Technical Education to integrate a broader curriculum in technical subjects and academic courses.

The curriculum will address Mathematics using Microsoft Excel. Today's office worker is asked to perform math calculations in a far different manner than in the past. Workers are challenged with Excel worksheets that often include extensive formulas that complete complex calculations that once were done using desktop calculators. Although students may have taken Excel

courses, the main emphasis is usually on how to use the software and not on how to develop math skills.

Business Math using Excel prepares students for today's jobs by incorporating math concepts using two approaches. One approach is to teach the concepts using the traditional method of calculating. The second approach is to teach those same concepts showing how Excel would make the calculations.

Business Math using Excel helps students create formulas that integrate the use of Excel's functions to make it the powerful application tool it is meant to be, and to develop a high level of math skills.

The United States Legislature has recognized that Career and Technical Education programs may accomplish great technical and occupational instruction related to educational attainment and skill development, workplace preparedness and employability.

Curriculum Validation Advisors

The Advisory Council Committee for Regional Occupational Program (ROP) in Rialto Unified School District reviewed and discussed Curriculum Integration and the job labor market conditions for employment for 2002-2012. The committee was recruited to validate the research findings for this project. Everyone agreed that

the need for Academic, and Career and Technical Education and training would be essential for occupational obtainment.

The Advisory committee examined the curriculum for implementation in public schools. They reviewed it and discussed two methods for Curriculum Integration. One method was incorporating Career and Technical Education into Academic courses. The other method was including occupational testing in academic courses was discussed.

The committee stated that students that acquired the skills in ROP classes for testing and interviewing would be able to obtain employment in the business industry.

Each advisor reviewed the integrated curriculum and unanimously verified the content as appropriate for providing students with employability skills. There were no changes identified by the committee and they all recommended that exposure to the world of work by improving the traditional curriculum in public schools will provide students with more awareness and job opportunities.

Curriculum Structure

The next section of the project provides an overview of the curriculum development process. Specifically, the

curriculum structure and content validation process are reviewed.

The core curriculum guideline was developed in accordance with Rialto Unified School District Regional Occupational Program. As stated in Chapter One, the need for Academic, and Career and Technical program has been identified, through careful scrutiny of the existing program that is being used in the Office Operations and Technology program.

Business Math using Excel identified the areas of basic skills needed for high school students to obtain training in technology through Academic and Career and Technical Education. The competencies identified as essential to obtaining and maintaining meaningful employment were included in the curriculum.

The curriculum is intended for the use in a one-semester introductory business math course. The content may be adapted to a quarter term. Basic experience or knowledge with computer and Excel software is assumed. Students will complete the course with a solid understanding of math that provides the necessary foundation for students interested in business careers. In addition, the curriculum prepared students to use math

where they will most likely need it: at home and in the ever-changing U.S. workplace.

Through a consensus of educators of Regional Occupational Program, the following outline was developed. The outline consists of the (1) lesson title; (2) lesson outline; (3) lesson objectives; (4) materials and equipment; (5) evaluation; (6) comprehension. There are no prerequisites for this class, although math, English and computer skills are strongly recommended.

Summary

The steps used in developing this project were outlined. The population served and curriculum developments, curriculum validation and curriculum structure were discussed. The existing curriculum outlined for this project was presented in Appendix A, along with the revised curriculum in Appendix B.

CHAPTER FOUR

CONCLUSIONS AND RECOMMENDATIONS

Introduction

Included in Chapter Four was a presentation of the conclusions gleamed as a result of completing the project. Furthermore, the recommendations extracted from the project are presented. Lastly, the Chapter concluded with a summary.

Conclusions

The conclusions extracted from the project are as follows:

1. Based on the review of literature and discussion with experts the current curriculum at the Rialto Unified School District should be incorporated to become more innovative.
2. Have Career and Technical Education and Academic teachers emphasize the development of the same basic academic skills.
3. Have career and technical education teachers as speakers in academic classes.
4. Teach as teams (academic and career and technical education), and pretest students for basis skills needed in career and technical

literature that relate to real-life work education.

5. Use career and technical education organization project as a springboard for having Academic and Career and Technical Education teachers work together.
6. Restructure academic courses to include more applied applications that relate to the real world.
7. Use job-related topics for composition assignments in English and find situations in literature that relate to real-life work experience.

Recommendations

The recommendations resulting from the project follows.

1. Realign the curriculum to eliminate the general track and develop plans of study for students.
2. Have academic teachers borrow books from the career and technical education teachers.
3. Require career and technical education teachers to share with academic teachers on a six-week basis the basic skills in math, science, and

English that students will need in their classes.

4. Provide English teachers time to share with career and technical teachers specific skills they would like to have emphasized in the career and technical education courses.
5. Provide time for academic teachers to visit career and technical education classes while in session and for career and technical education teachers to visit academic classes while in sessions.
6. Provide incentives for teachers to become involved and implement integration strategies (financial support).
7. Review overall plans and strategies for achieving integration of career and technical and academic education with teachers on a periodic basis, at least twice a year.

Summary

Chapter Four reviewed the conclusions extracted from the project. Lastly, the recommendations derived from the project were presented.

APPENDIX A
EXISTING CURRICULUM AND CURRICULUM
INTEGRATION FORMATS

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INTRODUCTION

This segment of the project, Curriculum Integration was divided into Appendix A and Appendix B for providing a comparison in curriculums utilized by the Rialto Unified School District for instructing Career and Technical Education courses. In addition, to validate the need for Curriculum Integration throughout pre/post secondary schools, and to introduce the benefits this design has for Academics as well as Career and Technical Education.

The merging of these course studies, core Academics, and Career and Technical Education provides dual enhancement for both courses and for the students within these courses. The Curriculum Integration will integrate Business Math using Microsoft Excel Application spreadsheets as follows: 1) Spreadsheet exercises 2) quizzes. This approach will aid students in applying the math concepts presented in the curriculum in a meaningful, realistic way by using Microsoft Excel. Each lesson plan includes Business Math concepts and Excel spreadsheets, which connect student's learning process in their academic subjects with the knowledge and skills they acquire from Career-and Technical Education. The target audience was high school learners.

HISTORY

In the beginning, no division existed between Academic and Career and Technical Education. In the 19th century when public schools were established in this country, there was little isolated and specific education. Career and Technical Courses were viewed as programs to "train the mind by training the hand."

Students competing for employment in the 21st century would truly benefit from a restructuring of Academic and Career Education. What is needed in today's world is neither a new brand of academics nor a new style of vocational, but a fusion of the two (California Department of Education, 1990)

Existing Curriculum
for Rialto Unified School District

Business Skills Lab

COURSE DESCRIPTION

The objective of this course is to provide individual students proficiency in the following:

- Keyboarding techniques with 100% Accuracy
- Operate a Word Processing System
- Enter/exit Microsoft Word Programs
- Maintain Storage Devices Create.
- Save, Close, and Open a Word Document.
- Edit and Print a Word Document
- Controlling printing features for each application.
- Enhance single-page business documents and reports with character formatting including all caps, bold, underlining, and italics.
- Enhance single-page business memoranda and letters by changing the alignment, indents, margins, and line spacing of paragraphs. Adjust the style and size of type as well as appearance of characters in standard business documents.
- Check the spelling of words in documents; improve the writing skills by using the grammar and thesaurus checker.

Prerequisite: None

COURSE OBJECTIVES

By the end of the unit, given information on keyboarding technique, each student will be able to

1. Identify proper technique (good form) and letters on the keyboard.
2. Describe keyboard techniques and key locations.
3. Identify space bar; return/enter key, shift keys, caps lock, and tabulator.
4. Describe operating service keys with skills and proper technique.
5. Identify the major parts of business letters.
6. Describe a block and modified block letter.
7. Describe the rules for typing business letter.

LESSONS

Perform keyboarding techniques with 100% Accuracy Operate a Word Processing System Enter/exit Microsoft Word Program and Window program Maintain Storage Devices Create. Save. Close, and Open a Word Document. Edit and Print a Word Document, controlling printing features. Enhance single-page business documents and reports with character formatting including all caps, bold, underlining, and italics. Enhance single-page business memoranda and letters by changing the alignment, indents, margins, and line spacing of paragraphs. Adjust the style and size of type as well as appearance of characters in standard business documents. Check the spelling of words in documents; improve the writing skills by using the grammar and thesaurus checker.

METHODS OF INSTRUCTION

Lecture
Demonstration
Guided Practice

METHODS OF EVALUATION

Participants are given a timed typing exam upon completion of the unit, which follow the content and format of the industry exam for employment. The exam consists of speed and accuracy timed test of 35 wpm. Participants will be asked to solve various formations guides for business letters and key stroking techniques for each key. Participants will demonstrate respect for computer literacy and keyboarding skills consistent with the industry standards for Business Skills. Instructor will observe participates throughout the course and evaluate their professional development skills using timed test and contracts.

COURSE MATERIALS

Textbooks:
College Keyboarding
Microsoft Word 2000

Equipment:

Computers
Printers

APPENDIX B
PROPOSED REVISED CURRICULUM

APPENDIX B:
PROPOSED REVISED CURRICULUM SYLLABUS
BUSINESS MATH USING EXCEL
COURSE DESCRIPTION

This course will teach the fundamentals of Business Mathematics using Microsoft Excel. It will give students an in-depth understanding of why they should study math. It will also present the material in a systematic approach that is easy for students to follow and remember.

Academic and Career and Technical integration will establish a base of skills and understating that will allow students to succeed in adapting to innovations in the business world by using Excel software.

COURSE INFORMATION

Pre-requisite: None

Abilities Required: None

Dress Requirement and Grooming: Industry Standard

Course Length: 90 hours

COURSE CONTENTS

- I. Course Introduction
 - a. Course objectives
- II. Unit Competencies
 - a. Keyboarding
 - b. Reading
 - c. Proofreading
- III. Unit Competencies
 - a. Business Mathematics

- b. Basic Math Functions
- c. Records Management
- d. Basic Math Operation and Excel Spreadsheet
- e. Use Excel to Solve Problems Involving Addition, Subtraction, Multiplication, and Division
- IV. Fractions (mathematical)
 - a. Fractions and Mixed Numbers
 - b. Add and Subtract Fractions and Mixed Numbers
 - c. Multiply and Divide Fractions and Mixed Numbers
 - d. Fractions Operation and Excel Spreadsheet
 - e. Use Excel to Multiply and Divide Numbers and Fractions
- V. Introduction Percent
 - a. Percent
 - b. Part, Rate, and Base
 - c. Percent of Increase and Decrease
 - d. Percent Operation and Excel Spreadsheet
 - e. Use Excel to Calculate, Increase and Decrease Percentage Distribution
- VI. Bank Services
 - a. The Checking Account
 - b. Bank Statement Reconciliation
 - c. Use Excel to Reconcile A Bank Statement
- VII. Payroll
 - a. Gross Earnings
 - b. Payroll Deductions
 - c. Use Excel to Calculate Social Security, Medicare, Federal Income Tax, and State Income Tax.

- d. Employee's Earnings Record and Payroll Register

- e. Use Excel to Create A Payroll Register

VIII. Taxes and Insurance

- a. Property Tax and Property Tax Rate

- b. State unemployment Tax, Federal Unemployment Taxes

- c. Federal Income Tax

- d. Health, Auto, Life, and Property Insurance

- e. Use Excel to Calculate State, Federal unemployment Taxes and Federal Income Tax

IX. Purchasing Merchandise

- a. The Purchasing Cycle

- b. Cash Discounts

- c. Trade Discounts

- d. Series Discount

- e. Use Excel to Calculate Sales Taxes

X. Markup and Markdown

- a. Concepts Used in Pricing Merchandise

- b. Selling Price

- c. Markup Rate

- d. Markdown

- e. Use Excel to Calculate Markdown, Markup and Selling Price.

XI. Interest

- a. Simple Interest

- b. Note and Interest Variables

- c. Compound Interest

- d. Use Excel to calculate interest, discount a note, compound amount and compound interest

XII. Consumer Credit and Mortgages

- a. Open-End Credit
- b. Closed-End Credit
- c. Mortgage Loans
- d. Use Excel to Determine Monthly payment and to prepare an Amortization Schedule

XIII. Annuities, Stocks, and Bonds

- a. Annuities
- b. Stocks
- c. Bonds
- d. Use Excel to Calculate, and Track Annuities, Stock and Bond Investment.

XIV. Depreciation

- a. Straight-line Depreciation
- b. Use Excel to Prepare a Straight-Line Depreciation Schedule
- c. Double-Declining-Balance Method
- d. Use Excel to Prepare A Depreciation Schedule using the Double-Declining-Balance Method
- e. Sum-of-the Year's-Digits Method
- f. Use Excel to Prepare a Depreciation Schedule using the Sum-of the Year's-Digits Method
- g. Modified Accelerated Cost Recovery System
- h. Use Excel to Prepare A Depreciation Schedule using the Modified Accelerated Cost Recovery System Method

XV. Financial Statement

- a. Income Statement

- b. Use Excel to Create an Income Statement
- c. Balance Sheet
- d. Use Excel to Create a Balance Sheet
- e. Use Financial Ratios
- f. Use Excel to Calculate Ratios

XVI. Business Statistics

- a. Measures of Central Tendency: Mean, Median, and Mode
- b. Use Excel to calculate the Mean, Median, and Mode
- c. Frequency Distributions and Graphs
- d. Use Excel to Create A Circle (pie) Graph
- e. Measures of Dispersion
- f. Use Excel to Calculate the Standard Deviation

CAREER AND TECHNICAL EDUCATION
BUSINESS MATH USING EXCEL

UNIT PLAN I-VI

By

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CAREER AND TECHNICAL
BUSINESS MATHEMATICS USING EXCEL

UNIT I Plan

Unit I: COURSE INTRODUCTION

Clock Hours: 4

Credit Units: N/A

A. DESCRIPTION

In this unit, participants receive a review of office protocol, class and office behavior, and industry's standards. Emphasis is on math concepts using two approaches. One approach is to teach the concepts using the traditional method of calculating. The second approach is to teach those same concepts showing how Excel would make the calculations. Business Math using Excel helps students create formulas and use Excel's functions, and develop a high level of math skills.

B. BEHAVIOR OBJECTIVES

Cognitive:

By the end of this unit given information on Career and Technical course description and objectives and identify the components of the computer and their functions each student will be able to

Written/Oral English Language 1.0, 1.1, 1.2, 1.3 Reading Comprehension 2.0, 2.1 through 2.8	<ul style="list-style-type: none">• Review the course description and objectives.• Identify the components of the computer and their functions• Define equipment terminology and proper use of office equipment• Define proper procedures to follow in using equipment and facilities in the workplace.• Define proper procedures for career preparation standards and academic standards in the course• Define proper teacher and student expectations in Curriculum Integration Requirements.
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Psychomotor:

By the end of this unit, given a demonstration and guided practice handouts, each participant will be able to

- Describe proper office procedures, keyboarding techniques, equipment terminology and basic mathematics operations using Excel to 100% accuracy.

Affective:

By the end of the unit, given guidelines and informational handouts, each participant will be able to

- Demonstrate willingness to follow proper positive company image.
- Demonstrate willingness to follow proper regulations and procedures in the course and workplace
- Demonstrate willingness to follow proper student expectations in curriculum integration requirements for improved skill performance.
- Demonstrate willingness to observe professional and business office attire consistent with that of business industry.

C. TEXTBOOKS/INSTRUCTIONAL MATERIALS AND REFERENCES

Textbooks:

Integrated Computer Applications Fourth Edition, 2005
VanHuss, Forde, Woo, Hefferin Thomson South Western
Publishing Company ISBN: 0-538-72827-2

*Integrated Computer Application, 2005, VanHuss, Forde,
Woo, Hefferin South Western Publishing Company*
ISBN: 0-538-72888-4

References:

<http://servicedirect.thomsonlearning.com>

Equipment:

Pen/Pencils
Computers
Calculator
Pocket Folders
2" 3 Ring Notebook (with paper)
8 ½" X 11" Lined Tablet

D. TOPICS

1. Course Introduction and Course Objectives
2. Define Professionalism, including Punctuality, Attendance, and Positive Attitude.
3. Computer Hardware and Software Terminology

4. Business Mathematics and Computations
5. Records Management
6. Professional and Business Office Attire
7. Listening and Speaking Procedures

E. METHODS OF INSTRUCTION

1. Lecture
2. Demonstration
3. Guided Practice
4. Handouts
5. Scenario-based Role-playing

F. METHOD OF EVALUATION

Cognitive:

Participants are given handouts describing appropriate industry specific terminology, interpersonal skills and job search and keyboarding techniques.

Psychomotor:

Participants will be asked to describe and demonstrate proper Life and Career goals with the ability to adapt to change. Basic Mathematics computations using Excel.

Affective:

Participants will describe office terminology, interpersonal skills and job search procedures. Work as a member of a team as well as independently.

G. EVALUATION CRITERIA

Cognitive

- Participants must achieve 75% on the unit quiz to pass the unit.
- Participants must achieve 70% on the average of all six units to pass the program.

Psychomotor

- Participants will describe the use of available resources and information for application to specific tasks. Define personal and career professional standards with 100% accuracy.

Affective

- On a scale of 1-4 with 1 being the highest, participants will average no less than 2 in all categories.

CAREER AND TECHNICAL
BUSINESS MATEMATICS USING EXCEL

UNIT II Plan

Unit II: COMPUTE AND TYPE BUSINESS DOCUMENTS

Clock hours: 4
Credit Units" N/A

A. DESCRIPTION

In this unit, participants receive a review of proper keyboarding technique without looking at the keyboard. Internet usage precautions in legal and ethical issues are covered in using the World Wide Web. Mastery of keyboard operation is assured in this technique by providing both intensive and extensive repetition of the reach-strokes to keyboarding keys. This plan of emphasis is in harmony with business correspondence with a large body of keyboarding in business documents.

B. BEHAVIOR OBJECTIVES

Cognitive:

By the end of this unit, given information on Career and Technical Education students will be able to identify proper keyboarding techniques with emphasis on using numerical keystrokes for Excel software.

Written/Oral Number Sense 1.0, 1.3, 1.6, 1.7 Reading Comprehension 2.0, 2.1 through 2.8	<ul style="list-style-type: none">• Demonstrate proper technique (good form) and letters on the keyboard• Describe keyboard technique and key locations• Identify space bar, return/enter key, shift keys, caps lock, and tabulator• Define Internet usages and precautions• Define legal and ethical issues in the World Wide Web• Define of electronic storage systems.• Demonstrate calculator keypad using the keyboard for spreadsheet functions.
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Psychomotor:

By the end of this unit, given a demonstration and guided practice handouts, each participant will be able to

Describe proper Career preparation standards using the keyboard and legal and ethical issues in the World Wide Web to 100% accuracy.

Affective:

By the end of this unit, given guidance and informational handouts, each participant will be able to:

- Demonstrate a professional attitude consistent with an entry-level clerk.
- Demonstrate willingness to perform the various typing techniques.
- Demonstrate willingness to observe proper keyboarding techniques and computer hardware procedures.
- Demonstrate willingness to observe proper components of the computer and their functions.
- Demonstrate willingness for computers and printers operation and safety.
- Demonstrate willingness for professional document appearance.

C. TEXTBOOKS/INSTRUCTIONAL MATERIALS AND REFERENCES

Textbooks:
College Keyboarding

Instructor provided material for office equipment and user manuals/handouts

References: <http://servicedirect.thomsonlearning.com>

Equipment:
Textbooks
Computer
Pen/Pencils

D. TOPICS

1. Keyboarding techniques
2. Procedures in keyboarding operations
3. Computer software
4. Internet usages

E. METHODS OF INSTRUCTION

1. Lecture
2. Demonstration
3. Guided practice
4. Handouts

F. METHOD OF EVALUATION

Cognitive:

Participants are given handouts describing the World Wide Web legal and ethical issues. They are also given a timed typing exam upon completion of the unit, which follow the content and format of the industry exam for employment. The exam consists of speed and accuracy time test of 35 wpm.

Psychomotor:

Participants will be asked to solve various formation guides for business standards and key stroking techniques for each key.

Affective:

Participants will demonstrate respect for computer literacy and keyboarding skills consistent with the industry standards for clerical occupations. Instructor will observe participants throughout the course and evaluate their professional development skills using timed test, contracts.

G. EVALUATION CRITERIA

Cognitive

- Participants must achieve 70% on the unit exam to pass the unit.
- Participants must achieve 70% on the average of all required assignments to pass the program.

Psychomotor

- Participants will compute and type various documents with 100% accuracy.

Affective

- Participants will demonstrate respect for computer technology and show a positive attitude to the criterion of basic keyboarding skills and documents preparation. Instructor will observe students progress and evaluate their professional development skills using the rubric.

CAREER AND TECHNICAL

BUSINESS MATHEMATICS USING EXCEL

UNIT III Plan

Unit III: BUSINESS MATH USING EXCEL

Clock hours: 4
Credit Units" N/A

A. DESCRIPTION

In this unit, participants receive a review of a solid foundation of Business Mathematics usage (addition, subtraction, multiplication, division, fractions and percentages); this course will provide students with instruction in the application of fundamental arithmetic skills using Microsoft Excel that are needed in most office and clerical position.

C. BEHAVIOR OBJECTIVES

Cognitive:

By the end of this unit, given information on Career and Technical students will be able to identify each position of the decimal number, write numbers or amounts in word forms. Round numbers to approximate an answer, and use Excel to round numbers.

Written/Oral Number Sense 1.0, 1.3, 1.6, 1.7 Reading Comprehension 2.0, 2.1 through 2.8 Mathematics 2.0, 2.1, 2.2, 2.3, 3.0 3.1, 3.2	<ul style="list-style-type: none">• Define proper mathematics computation using fractions, percentages and decimals.• Define of electronic storage systems.• Accurately add, subtract, multiply and divide fraction, decimal and percentages.• Demonstrate spreadsheet functions.
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Psychomotor:

By the end of this unit, given a demonstration and guided practice handouts, each participant will be able to

Describe proper Career preparation standards and academic standards in the Curriculum Integration course to 100% accuracy.

Affective:

By the end of this unit, given guidance and informational handouts, each participant will be able to:

- Demonstrate willingness to observe proper mathematic operations and computations using Excel spreadsheets procedures.
- Demonstrate willingness to observe proper procedures for each position of the decimal number system.
- Demonstrate willingness to observe proper keyboarding techniques and computer hardware procedures.
- Demonstrate willingness to observe proper components of the computer and their functions.
- Demonstrate willingness to follow proper instructions for uses of identify terms used with adding and subtracting fraction.
- Demonstrate willingness to follow instruction for using the keyboard to create formulas for mathematics operations.

C. TEXTBOOKS/INSTRUCTIONAL MATERIALS AND REFERENCES

Textbooks:

Instructor provided material for office equipment and user manuals/Handouts

References: <http://servicedirect.thomsonlearning.com>

Equipment:

Pen/Pencils
Computers
Pocket Folder
2" 3 Ring Notebook (with paper)
8 ½ " X 11" Lined Tablet

D. TOPICS

1. Keyboarding Techniques and procedures
2. Critical thinking and problem-solving skill in the workplace
3. Prioritize tasks and meet deadlines
4. Fractions and mixed numbers
5. Add and subtract fractions
6. Multiply and divide fractions and mixed numbers using Excel software.

E. METHODS OF INSTRUCTION

1. Lecture
2. Demonstration
3. Guided practice
4. Handouts
5. Scenario-based role-playing

F. METHOD OF EVALUATION

Cognitive:

Participants are given handouts describing applied mathematic skills appropriate to the job, and critical thinking and problem-solving skills, recognize problem situations and outline problem-solving steps. Upon completion of this unit, student will be able to complete an exam consisting of true, false, and multiple-choice questions on the topics in this unit.

Psychomotor:

Participants will be asked to describe and demonstrate proper mathematic computations consisted with clerical occupational duties.

Affective:

Participants will describe the facilities and equipment, and the expectations of both the teacher and the student required for clerical occupation. Instructor will observe participants throughout the course, and evaluate their professional development using a rubric.

G. EVALUATION CRITERIA

Cognitive

- Participants must achieve 70% on the unit quiz to pass the unit.
- Participants must achieve 70% on the average of all required assignments to pass the program.

CAREER AND TECHNICAL
BUSINESS MATH USING EXCEL

UNIT IV Plan

UNIT IV: BUSINESS MATH USING EXCEL

Clock Hours: 4
Credit Units: N/A

A. DESCRIPTION

In this unit, the following project bridges the gap between the classroom and the workplace. By completing this project, students will develop workplace competencies, such as the use of resources, interpersonal skills, information, and technology. In addition to the competencies, student will strengthen basic skills (writing, speaking, Business Math, listening, and thinking skills, which includes making decisions, solving problems, and reasoning. Students may also enhance personal qualities, such as responsibility and self-management.

BEHAVIOR OBJECTIVES

Cognitive:

By the end of this unit, students will analyze and interpret the numbers on sales summaries, supply summaries, inventories and resource tables. They will practice sequencing numbers, finding averages, recognizing trends, and comparing percents in business mathematics using Excel.

Written/Oral English Language 1.0, 1.1, 1.2, 1.3 Reading Comprehension 2.0, 2.1 through 2.8 Mathematics 2.0, 2.1, 2.2, 2.3, 3.0, 3.1, 3.2	<ul style="list-style-type: none">• Define terms used with percentages within the workplace• Define forms used with sales and inventories invoices.• Define Excel functions in calculating percentages.• Define writing a percent as a fraction• Define using Excel to format a percent, decimal, or fraction.
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Psychomotor:

By the end of this unit, given a demonstration and guided practice handouts, each participant will be able to

- Describe forms using sales and inventories invoices with Business Math projects using Excel spreadsheet to 100% accuracy.

Affective:

By the end of this unit, given guidance and sales, supply, inventories handouts each participant will be able to

- Demonstrate willingness to follow proper mathematic computation in completing form for the workplace environment.
- Demonstrate willingness to prepare a monthly budget using Microsoft Excel.
- Demonstrate willingness to include formatting cell, creating basic formulas, and saving and printing the worksheet.
- Demonstrate willingness to access the World Wide Web using Microsoft Internet.

C. TEXTBOOK/INSTRUCTIONAL MATERIALS AND REFERENCES

Textbooks:

Instructor provided material for office equipment and user manuals/handouts

Equipment:

Pen/Pencils
Computers
Calculator
Pocket Folders
2" 3 Ring Notebook (with paper)
8½" X 11" Lined Tablet
Data Disk

D. TOPICS

1. Definitions of Terms
2. Microsoft Excel
3. Business Mathematics
4. Inventories Forms

E. METHOD OF EVALUATION

Cognitive

Participants are given forms to create, analyze, and interpret the numbers on sales summaries, supply summaries, inventories and resource tables. Upon completion of the unit participants will be able to complete an exam consisting business mathematics and Excel spreadsheets in this unit.

Psychomotor

Participants will be asked to describe and demonstrate various inventories and resources using Business Mathematics and Excel.

Affective:

Participants will describe and demonstrate various inventories and resources using Business Mathematics and Excel. Instructor will observe participants throughout the course and evaluate their career and technical professional development using a rubric.

G. EVALUATION CRITERIA

Cognitive

- Participants must achieve 75% on the unit quiz to pass the unit
- Participants must achieve 75% as an average on all math and Excel spreadsheet to pass program.

Psychomotor

- Participants will describe mathematical terms and Excel formatting functions and various forms with 100% accuracy.

Affective

- On a scale of 1-4 with 1 being the highest, participants will average no less than 2 in all categories.

**CAREER AND TECHNICAL -BUSINESS MATH USING EXCEL
UNIT V Plan**

UNIT V: THE CHECKING ACCOUNT

Clock Hours: 4
Credit Units: N/A

DESCRIPTION

In this unit, participants receive a review of procedures using checking accounts. Emphasis will be on writing checks, distinguish among the type of checking accounts, and maintaining a checkbook and a check register. Use Excel to complete a deposit slip and a check register.

BEHAVIOR OBJECTIVES

Cognitive:

By the end of this unit, given information on checking accounts using Excel spreadsheets and gross earning each student will be able to:

Written/Oral English Language 1.0, 1.1, 1.2, 1.3 Reading Comprehension 2.0, 2.1 through 2.8 Mathematics 2.0, 2.1, 2.2, 2.3, 3.0, 3.1, 3.2	<ul style="list-style-type: none">• Define terms used with checking accounts• Define checking account services• Define among the types of checking accounts• Define proper procedures for maintaining a check book and a check register• Define Excel spreadsheets to complete a deposit slip and a check register
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Psychomotor:

By the end of this unit, given a demonstration and guided practice handouts, each participant will be able to

- Describe proper checking account services to 100% accuracy

Affective:

By the end of this unit, each participant will be able to

- Demonstrate willingness to observe proper procedures in maintaining a checkbook and check register
- Demonstrate willingness to observe procedures for distinguishing among the types of checking account
- Demonstrate willingness to identify proper checking account services.

- Demonstrate willingness to observe proper procedures using Excel to complete a deposit slip and a check register

TEXTBOOKS/INSTRUCTIONAL MATERIALS AND REFERENCES

Textbooks:

Microsoft Office XP:

References: <http://www.scsite.com/>

Equipment:

Pen/Pencils
Computers
Calculator
Pocket Folder
2" 3 Ring Notebook (with paper)
8 ½" X 11 Lined Tablet
Overhead Projector

Topics

1. Terms used with checking accounts
2. Checking account services
3. The types of checking accounts
4. Maintain a checkbook and a check register
5. Use Excel to complete a deposit slip and a check register

METHODS OF INSTRUCTION

Cognitive:

Participants are given a personal checking account to manage check records. Participants will keep a check register and shows the running balance of the checking account:

Upon completion of this unit, the participants will be able to complete a written exam consisting of writing checks on all topics in this unit.

Psychomotor:

Participants will be asked to describe and demonstrate filling out check writing and check register for personal and business accounts

Affective:

Participants will describe proper use of Excel spreadsheet to complete a deposit slip and a check register. Instructor will observe participants throughout the course and evaluate basic math skills, addition and subtraction, and Excel's basic formulas using a rubric.

EVALUATION CRITERIA

Cognitive

- Participants must achieve 70% on the unit quiz to pass the unit.
- Participant must achieve 70% on the average of all five units to pass the program.

Psychomotor

- Participants will describe proper checking transactions including deposits and cash withdrawals to 100% accuracy

Affective

- On a scale of 1-4 with 1 being the highest, participants will average no less than 2 in all categories.

**CAREER AND TECHNICAL
BUSINESS MATH USING EXCEL**

UNIT VI Plan

UNIT VI: CONSUMER CREDIT AND MORTGAGES

Clock Hours: 4
Credit Units: N/A

A. DESCRIPTION

In this unit, different methods of calculating card balances, shows how to use two common methods open-end credit and closed end credit. Identify terms used with open-end credit, calculate finance charge using previous balance, and calculate new balance using average daily balance with the use of Excel to calculate finance charges and new balance.

BEHAVIOR OBJECTIVES

Cognitive:

By the end of this unit, each participant will be able to:

Written/Oral English Language 1.0, 1.1, 1.2, 1.3 Reading Comprehension 2.0, 2.1 through 2.8 Mathematics 2.0, 2.1, 2.2, 2.3, 3.0, 3.1, 3.2	<ul style="list-style-type: none">• Define terms used with open-end credit• Define guidelines in calculating finance charges used from previous balance.• Define new balance using average daily balance.• Define using Excel spreadsheets to calculate finance charge and new balance
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Psychomotor:

By the end of this unit, given documentation and examples of credit accounts, each participant will be able to:

- Describe open-end credit and closed-end credit to 100% accuracy

Affective:

By the end of the unit, given documentation and examples, each participant will be able to

- Demonstrate willingness to identify terms used with open-end credit
- Demonstrate willingness to calculate finance charge using previous balance
- Demonstrate willingness calculate new balance using average daily balance
- Demonstrate willingness to use Excel spreadsheet to calculate finance charge and new balance

TEXTBOOKS/INSTRUCTIONAL MATERIAL AND REFERENCES

Textbooks:

Life Skills using Mathematics. Maxwell, John C. First Warner Books,
ISBN: 0-446-53229-0
Office Etiquette & Protocol (1998) Fox, Grace. Learning Express, Inc.
ISBN: 1576851451

References:

<http://www.swlearning.com>

Equipment:

Pen/Pencils
Computers
Calculator
Pocket Folder
2" 3 Ring Notebook (with paper)
8 ½" X 11" Lined Tablet
Overhead projector

TOPICS

1. Terms used with open-end credit
- D. Finance charges using previous balance
- E. Calculate new balance using average daily balance
- F. Using Excel to calculate finance charge and new balance

METHOD OF INSTRUCTION

1. Lecture
2. Demonstration
3. Guided Practice
4. Handout

METHOD OF EVALUATION

Cognitive

Participants are given documentation and examples of different methods of calculating credit card balances and show how to use two common methods previously presented: Upon completion of the unit, participants will be able to complete an Excel spreadsheets on the topics in this unit.

Psychomotor

Participants will be asked to describe and demonstrate proper finance charge and annual percentage rate used with credit cards

Affective

Participants will describe the amount of interest, the amount to be repaid, and the amount of each monthly payment. Instructor will observe participants throughout the course and evaluate their development using a rubric.

EVALUATION CRITERIA

Cognitive

- Participants must achieve 75% on this unit quiz to pass the unit.
- Participants must achieve 70% on assigned units to pass the program

Psychomotor

- Participants will describe the Excel formula in calculation to 95% accuracy.

Affective

- On a scale of 1-4 with 1 being the highest, participants will average no less than 2 in all categories.

DOT: COMPUTER OPERATOR 213.362-010

PROGRAM DESCRIPTION

Career and Technical Education in Curriculum
Integration will provide students with the skills and knowledge necessary for employment in a business office. Upon successful completion of this course, students will be able to identify components and functions of the computer and keyboarding techniques. Use basic computer terminology, demonstrate word-processing, spreadsheet and database skills, use basic mathematic computations, and demonstrate a variety of Internet usage techniques. The use of language arts and math skills will be stressed. Emphasis will also be placed on people skills, grooming and employment skills.

PROGRAM OUTLINE

Course Number	Course Title	State Standards	Clock Hours
Unit 1	Course Introduction Equipment/Keyboarding Mathematics/Excel	Written/Oral Eng. Lang. 1.0 1.1, 1.2, 1.3 Comp. 2.0,2.01	4
Unit 2	Compute and Type Keyboarding Function Keys Internet usages	Written/Oral Number sense 1.3,1.6,1.7 Reading 2.0,	4
Unit 3	Business Math Microsoft Excel Terminology Electronic storage System	Written/Oral English Lang. 1.0, 1.1, 1.2, 1.3, Math 2.0 2.1, 2.2,2.2,	4
Unit 4	Percentage using Microsoft Excel Interpersonal Skills Problem Solving	Written/Oral 1.0,1.1,1.2, Math. 2.0,2.1, 2.2,2.3,3.0,3.1	4
Unit 5	Checking account Procedures using Checking account Check book/register	English Language 1.0,1.1,1.2,1.3, Mathematics 2.0,2.1, 2.3,3.0,3.1,3.2	4
Unit 6	Credit Cards Open-end credit Closed-end credit Finance charge Microsoft Excel	Written/Oral English language 1.0,1.1,1.2,1.3 Mathematics 2.0 2.1,2.2,2.3,3.0,3.1,3.2	4

BUSINESS MATHEMATICS USING EXCEL

UNIT DESCRIPTIONS

UNIT 1: COURSE INTRODUCTIONS

CLOCK HOURS: 10
CREDIT UNITS: 2.5

In this unit, participants receive a review of office protocol, class and office behavior, and industry's standards. Emphasis is on math concepts using two approaches. One approach is to teach the concepts using the traditional method of calculating. The second approach is to teach those same concepts showing how Excel would make the calculations. Business Math using Excel helps students create formulas and use Excel's functions, and develop a high level of math skills.

UNIT 2: COMPUTE AND BUSINESS DOCUMENTS

CLOCK HOURS: 40
CREDIT UNITS: 5

In this unit, participants receive a review of proper keyboarding technique without looking at the keyboard. Internet usage precautions in legal and ethical issues are covered in using the World Wide Web. Mastery of keyboard operation is assured in this technique by providing both intensive and extensive repetition of the reach-strokes to keyboarding keys. This plan of emphasis is in harmony with business correspondence with a large body of keyboarding in business documents.

UNIT 3: BUSINESS MATH USING EXCEL

CLOCK HOURS: 40
CREDIT UNITS 5

In this unit, participants receive a review of a solid foundation of Business Mathematics usage (addition, subtraction, multiplication, division, fractions and percentages); this course will provide students with instruction in the application of fundamental arithmetic skills using Microsoft Excel that are needed in most office and clerical position.

UNIT 4: BUSINESS MATH USING EXCEL

CLOCK HOURS:40

CREDIT UNITS 5

In this unit, the following project bridges the gap between the classroom and the workplace. By completing this project, students will develop workplace competencies, such as the use of resources, interpersonal skills, information, and technology. In addition to the competencies, student will strengthen basic skills (writing, speaking, Business Math, listening, and thinking skills, which includes making decisions, solving problems, and reasoning. Students may also enhance personal qualities, such as responsibility and self-management.

UNIT 5: THE CHECKING ACCOUNT

CLOCK HOURS:25

CREDIT UNITS:5

In this unit, participants receive a review of procedures using checking accounts. Emphasis will be on writing checks, distinguish among the type of checking accounts, and maintaining a checkbook and a check register. Use Excel to complete a deposit slip and a check register.

UNIT 6: CONSUMER CREDIT AND MORTGAGES

CLOCK HOURS: 25

CREDIT UNITS: 5

In this unit, different methods of calculating card balances, shows how to use two common methods open-end credit and closed end credit. Identify terms used with open-end credit, calculate finance charge using previous balance, and calculate new balance using average daily balance with the use of Excel to calculate finance charges and new balance.

UNIT 1 (4-HOUR SCHEDULE)

BUSINESS MATHEMATICS USING EXCEL

Office Protocol/Office Behavior,/Industry's Standards/Basic Math

Unit 1: COURSE INTRODUCTIONS

UNIT 1-HOURS 10	UNIT 1-HOUR 10	UNIT 1-HOUR 10	UNIT 1-HOURS 10
Office protocol Office behavior Industry's standards Reading Comp. 2.0 Through 2.8 Listening/speaking 1.0	Classroom Procedures and Expectations Define Professionalism Honesty and respect others	Characteristics of effective employees Prioritize tasks and Meet deadlines Discuss punctual attendance, positive attitude, initiative responsibility	Equipment Terminology Function and operation of equipment Explain the role of computers in all business

Material: Hand-outs, Rules and Guidelines, and Syllabus

UNIT 2 (4-HOUR SESSION)

Business Mathematics/Career Preparation Standards

Business Math Using Excel

4 Clock hours per session:

UNIT 2-HOUR 1	UNIT 2-HOUR 2	UNIT 2-HOUR 3	UNIT 2-HOUR 4
Keyboarding Listening/speaking 1.0, writing 1.0, Reading 2.0	Keyboarding Complete drills For keyboarding speed and accuracy	Computers Identify the components of the computer and their functions	Internet Navigation Demonstrate internet navigation

Textbooks: College Keyboarding, 2002, Van Huss Duncan South-Western Education Publishing Company. ISBN 0-538-72001-8

UNIT 3 (4-HOUR SESSION)

Business Math Using Excel

4 Clock hours per session:

UNIT 3-HOUR 1	UNIT 3-HOUR 2	UNIT 3-HOUR 3	UNIT 3-HOUR 4
Business Mathematics Basic Addition/Subtraction Number sense 1.0,1.3,1.6,1.7, Algebra I 1.0	Business Math Addition, Subtraction, Fractions Have students complete work- sheet by computing a variety of discounts using Excel	Business Math Multiply and divide fractions Students will compute discounts sales tax and payroll taxes using Excel	Business Math Decimals and Percentage Students will compute fraction, percentages, and decimals using excel worksheets

Textbooks: Life Skills Math, 2003, Donald H. Jacobs and August V. Treff AGS Publishing Company. ISBN 0-7854-2935-2

Microsoft Excel 2000, @2000 Cable, Pasewark. South-Western Publishing ISBN: 0-538-68836-X

UNIT 4 (3-HOUR SESSION)

Business Math Using Excel

Checking Account

4 Clock hours per session:

UNIT 4-HOUR 1	UNIT 4-HOURS 2	UNIT 4-HOURS 3	UNIT 4-HOUR 4
Excel Spreadsheet functions Number sense 1.0,1.3,1.6,1.7, Algebra I 1.0 ding 2.6, Listening/speaking 1.0 Reading 2.0	Excel functions Correctly use tool bars, menu bars and commands	Design a spreadsheets Each student's work on his or her computer using spread sheet formulas	Create spreadsheet using formulas and graphs. Each student work on his or her computer creating graphs and charts.

Textbooks: Life Skills Math, 2003, Donald H. Jacobs and August V. Treff AGS Publishing Company. ISBN 0-7854-2935-2

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UNIT V (4-HOUR SESSION)

Business Math Using Excel

Credit Cards

Checking Accounts Identify terms used with checking accounts Listening/Speaking 1.0 Reading 2.0 Number Sense 1.0,1.3,1.6,1.7, Algebra I 1.0	Checking Account services: Electronic funds transfer Online banking Debit Cards Student will access the internet to create an account.	DISTINGUISH THE TYPE OF CHECKING ACCOUNTS Calculate the net deposit Requires basic math skills and Excel's formulas	Maintain a checkbook and a check register Use Excel to complete a deposit slip and a check register using Excel.
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UNIT VI (4-HOUR SESSION)

Business Math Using Excel

Consumer Credit and Mortgages

UNIT 6-HOUR 1 Used terms with open-end credit Listening/Speaking 1.0 Number Sense 1.0,1.3,1.6,1.7, Algebra I 1.0 ding 2.6,	UNIT 6-HOUR 2 Calculate finance charges using previous balance Use Excel to calculate finance charges and new balance	UNIT 6 HOUR-3 Calculate new balance using average daily balance Use Excel to calculate finance charges and new balance	UNIT 6 HOUR 4 Balance calculation methods Previous balance, billing cycle, adjusted balance using Excel
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Microsoft Excel 2000, @2000 Cable, Pasewark. South-Western Publishing ISBN: 0-538-68836-X

EQUIPMENT AND MATERIALS

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Computer and Related Equipment

Personal Computers with Microsoft Office XP installed
Computer Desks and Chairs
Net-Work Printers
Internet Connection

Miscellaneous Equipment

Calculators
Over-head Projection
Projection Screen

Miscellaneous Materials

Ink cartridges
Computer Disks
Floppy Disk's Cases
Transparencies
Keyboarding Software
Office XP Software

Supplies

Computer Paper
College Rule Paper
Paper Towel
Computer Disks
Notebooks for Portfolios
Tissues
Manila Folders

APPENDIX C
LESSON PLANS

Lesson Plan

Lesson Title: Rules and Regulations

Lesson Outline:

Classroom
Course/Program Requirement
Behavioral Expectation
Emergency Procedures

Lesson Objectives: Upon completion of this unit students will be able to

Demonstrate appropriate classroom behavior
Become familiar with behavior expectation and comply
With classroom's rules
Demonstrate appropriate emergency procedure protocol

Materials and Equipment:

Syllabus

Evaluation:

Demonstration of above objectives

Comprehension:

All students will review each requirements of this unit with 80% accuracy before proceeding to the next unit

Lesson Plan

Lesson Title: Computer Equipment

Lesson Outline:

Identify the components of the computer and their functions.
Define Computer hardware
Describe the types of software

Lesson Objectives:

Upon completion of this lesson the student will be able to:
Know and demonstrate the computer hardware
Know and demonstrate the types of software
Become familiar with the basic computer terminology

Materials and Equipment:

Personal computers
Laser printers and other devices that are used

Evaluation:

Students will demonstrate proficiency of each skills by identifying the correct application of computer software and the use of computer hardware

Comprehension:

Students will complete each lesson with 85% accuracy before proceeding to the next unit.

Lesson Plan

Lesson Title: Computer

Lesson Outline:

Computer terminology
Word processing skills
Database functions

Lesson Objectives: By the end of the course, the student will be able to

Define basic computer terminology
Demonstrate word processing skills common to an office environment
Demonstrate database functions common to an office environment

Materials and Equipment:

Textbook
Paper and Pen
Floppy Disk
Computer

Evaluation:

Students will demonstrate proficiency of the activity by defining computer terminology and functions using word processing skills

Comprehension:

Students will complete activities with 80% accuracy before proceeding to the next unit.

Lesson Plan

Lesson Title: Internet Usage

Lesson Outline:

Internet use techniques and precautions
Legal and ethical issues in the World Wide Web
Job search and retention techniques

Lesson Objectives:

Demonstrate a variety of internet use techniques and precautions
Describe legal and ethical issues in the World Wide Web
Demonstrate job search and retention

Materials and Equipment:

Legal and ethical handouts using the internet
computers

Evaluation:

Students will demonstrate proficiency of the requirements using the internet and legal issues.

Comprehension:

Students will meet the required standard with 80% accuracy before proceeding to the next unit.

Lesson Plan

Lesson Title: Keyboarding

Lesson Outline:

Identify Home Keys
Demonstrate Key Stroking Technique
Explain Spacing Techniques

Lesson Objectives: Upon completion of this lesson the student will

Identify home keys (ASDF - JKL;) by placing fingers in home keys position.

Materials and Equipment:

Keyboarding textbooks and computer's software

Evaluation:

Observing students; techniques and competency

Comprehension:

All students will practice proper technique and home keys with 100% accuracy before proceeding to the next unit

Lesson Plan

Lesson Title: Spreadsheets formula

Lesson Outline:

Sum
Average
Maximum/Minimum
Percentage

Lesson Objectives: Upon completion of this lesson the student will

Demonstrate spreadsheet function using averages
Demonstrate Maximum/Minimum functions
Use Percentages in Excel spreadsheets functions

Materials and Equipment:

Textbooks
Computers
Floppy Disks

Evaluation:

Students will demonstrate proficiency of the activity by completing worksheets using averages, maximum/minimum and percentages functions.

Comprehension:

Students will complete activities with 80% accuracy before proceeding to the next unit.

Lesson Plan

Lesson Title: Data Manipulation

Lesson Outline:

Rows and Columns
Headings
Heights and width
Text and style
Numeric formats

Lesson Objectives:

Identify the use of rows and columns
Identify headings, heights and width
Demonstrate text and style in formatting
Identify numeric formats in Excel spreadsheets

Materials and Equipment:

Textbooks
Computers
Floppy Disks

Evaluation:

Observing students; techniques and competency in using Excel spreadsheets

Comprehension:

Students will complete activities with 80% accuracy before proceeding to the next unit.

Lesson Plan

Lesson Title: Cells formulas

Lesson Outline:

Formulas
Comments
Links Shading and Borders
Named ranges

Lesson Objectives:

Demonstrate spreadsheet formulas
Demonstrate spreadsheet comments
Demonstrate spreadsheet links shading and borders
Identify named ranges

Materials and Equipment:

Textbooks
Computers
Floppy Disks

Evaluation:

Observing students; techniques and competency in using
Excel spreadsheets

Comprehension:

Students will complete activities with 80% accuracy
before proceeding to the next unit.

Lesson Plan

Lesson Title: Planning and design

Lesson Outline:

Function
Layout header and footer
Charts and graphs

Lesson Objectives:

Identify Excel functions using layout
Demonstrate header and footer
Demonstrate charts and graphs

Materials and Equipment:

Textbooks
Computers
Floppy Disks

Evaluation:

Observing students; techniques and competency in using
Excel spreadsheets

Comprehension:

Students will complete activities with 80% accuracy
before proceeding to the next unit.

LESSON PLAN

Lesson Title: Basic Math Functions using Excel

Lesson Outlines:

Numbers
Addition
Subtraction

Lesson Objectives: Students will be able to apply basic math skills to solve math computations

Identify each position of the decimal number system
Define numbers or amounts in word forms
Identify round numbers
Define round numbers to approximate an answer
Define using Excel to round numbers

Materials and Equipment:

Textbook
Floppy Disk
Calculators
Computers

Evaluation:

Students will demonstrate proficiency of the activity by solving math problems using real life situations, and explaining a math procedure using the correct terminology

Comprehension:

Students will complete activities with 80% accuracy before proceeding to the next unit.

Lesson Plan

Lesson Title: Real Life Situations Using Basic Math Skills

Lesson Outline:

Identify terms used with multiplication
Identify multiply using decimals
Household expenses
Budget

Lesson Objectives: Upon completion of this lesson the student will be able to:

Students will use real life situation that requires the use of realistic situation

Materials and Equipment:

Internet Access
Old catalogs containing home furnishings
Budget forms
Computer

Evaluation:

Students will demonstrate proficiency using real life situation and multiplication using Excel.

Comprehension:

Students will complete activities with 80% accuracy before proceeding to the next unit.

Lesson Plan

Lesson Title: Multiplication using Excel

Lesson Outline:

Solve problems with zeros in multiplication
Use Excel to solve problems involving multiplication
Integrate basic math functions using Excel

Lesson Objectives: Upon completion of this lesson the student will be able to:

Students will be able to solve basic math problems using multiplication in Excel spreadsheet

Materials and Equipment:

Computer
Overhead
Textbooks

Evaluation:

Students will demonstrate proficiency using basic math and in Excel projects.

Comprehension:

Students will complete activities with 80% accuracy before proceeding to the next unit.

Lesson Plan

Lesson Title: Fractions Using Excel

Lesson Outline:

Types of fractions
Proper
Improper
Mixed

Lesson Objectives: Upon completion of this lesson the student will be able to:

Covert fractions:
Improper to whole number
Improper to mixed number
Mixed to improper
Use Excel to multiply and divide numbers and fractions

Materials and Equipment:

Computer
Overhead Projector
Markers

Evaluation:

Students will demonstrate proficiency using basic math and in Excel projects.

Comprehension:

Students will complete activities with 80% accuracy before proceeding to the next unit.

Lesson Plan

Lesson Title: Fractions Using Excel

Lesson Outline

Reduce Fraction
Raise fractions
Convert fractions

Lesson Objectives: Upon completion of this lesson the student will be able to:

Reduce fractions to lowest terms
Raise fractions to higher term
Convert fractions to decimals
Use Excel to multiply and divide numbers and fractions

Materials and Equipment:

Computer
Overhead Projector
Markers

Evaluation:

Students will demonstrate proficiency using basic math and in Excel projects.

Comprehension:

Students will complete activities with 80% accuracy before proceeding to the next unit.

Lesson Plan

Lesson Title: Fraction In Excel

Lesson Outline:

Mix numbers
Add and Subtract
Common Denominator
Excel

Lesson Objectives: Upon completion of this lesson the student will be able to:

Enter fractions in Excel
Enter mixed numbers in Excel
Add and subtract like fraction

Materials and Equipment:

Computer
Overhead Projector
Markers

Evaluation:

Students will demonstrate proficiency using basic math and in Excel projects.

Comprehension:

Students will complete activities with 80% accuracy before proceeding to the next unit.

Lesson Plan

Lesson Title: Percentages

Lesson Outline:

Decimal
Percent
Fraction
Excel

Lesson Objectives: Upon completion of this lesson the student will be able to:

Write a percent as a decimal
Write a decimal as a percent
Write a percent as a fraction
Use Excel to format a percents, decimals, and fractions

Materials and Equipment:

Computer
Overhead Projector
Markers

Evaluation:

Students will demonstrate proficiency using basic math and in Excel projects.

Comprehension:

Students will complete activities with 80% accuracy before proceeding to the next unit.

Lesson Plan

Lesson Title: Computing Gross Earnings

Lesson Outline:

Gross Pay
Gross Earnings
Excel

Lesson Objectives: Upon completion of this lesson the student will be able to:

Calculate gross earnings for straight time, overtime, and double time
Use Excel to calculate straight time, overtime, and double time

Materials and Equipment:

Computer
Overhead Projector
Markers

Evaluation:

Students will demonstrate proficiency using basic math and in Excel projects.

Comprehension:

Students will complete activities with 80% accuracy before proceeding to the next unit.

Lesson Plan

Lesson Title: The Purchasing Cycle

Lesson Outline:

Purchasing Cycle
Terms used with Purchasing
Calculate Cash discounts
Use Excel

Lesson Objectives: Upon completion of this lesson the student will be able to:

Describe the purchasing cycle
Identify terms used with purchasing
Identify terms used with cash discounts
Calculate cash discounts
Use Excel to calculate the net amount due

Materials and Equipment:

Computer
Overhead Projector
Markers

Evaluation:

Students will demonstrate proficiency using basic math and in Excel projects.

Comprehension:

Students will complete activities with 80% accuracy before proceeding to the next unit.

Lesson Plan

Lesson Title: Consumer Credit and Mortgages

Lesson Outline:

Open-end credit
Finance charge
Average daily balance
Excel

Lesson Objectives: Upon completion of this lesson the student will be able to:

Identify terms used with open-end credit
Calculate finance charge using previous balance
Calculate new balance using average daily balance
Use Excel to calculate finance charge and new balance

Materials and Equipment:

Computer
Overhead Projector
Markers

Evaluation:

Students will demonstrate proficiency using basic math and in Excel projects.

Comprehension:

Students will complete activities with 80% accuracy before proceeding to the next unit.

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